

WHAT IS CLAIMED IS:

1. A high-pressure mercury lamp comprising:
  - a transparent envelope made of quartz glass, in which mercury,
  - 5 halogen, and a rare gas are sealed; and
  - a pair of electrodes provided in the transparent envelope,
  - wherein an amount of the halogen sealed in the transparent envelope
  - is in a range from  $1.0 \times 10^{-6} \mu\text{mol}/\text{mm}^3$  to  $1.0 \times 10^{-2} \mu\text{mol}/\text{mm}^3$ , and 2.5 mol%
  - to 25 mol% of oxygen with respect to the amount of the halogen is present in
  - 10 the transparent envelope.
2. The high-pressure mercury lamp according to claim 1, wherein the halogen is bromine.
- 15 3. The high-pressure mercury lamp according to claim 1, capable of performing a light control operation in which the high-pressure mercury lamp is operated at a power lower than a rated power.
4. The high-pressure mercury lamp according to claim 3, wherein the power
- 20 lower than the rated power is a power not more than 85% of the rated power.
5. The high-pressure mercury lamp according to claim 3, wherein the rated power is 200 W or more.
- 25 6. The high-pressure mercury lamp according to claim 5, wherein the transparent envelope is substantially spherical or substantially spheroidal,
- the pair of electrodes are arranged so as to substantially face each other, and
- 30 the following relationships are satisfied:
$$L \leq 2.0 \text{ mm}, r/L > 5$$
where L (mm) denotes a distance between the electrodes and r (mm) denotes a maximum inner diameter of the transparent envelope in the longitudinal direction of the electrodes.
- 35 7. The high-pressure mercury lamp according to claim 1, wherein a content of potassium in the electrodes is not more than 10 ppm.

8. A lamp unit comprising:  
a concave reflecting mirror; and  
the high-pressure mercury lamp according to claim 1 attached to the  
concave reflecting mirror,
- 5        wherein the high-pressure mercury lamp is attached so that a  
midpoint between the pair of electrodes substantially coincides with a focal  
position of the concave reflecting mirror.
9. An image display device comprising:
- 10        the lamp unit according to claim 8;  
a circuit for operating the high-pressure mercury lamp included in  
the lamp unit;  
converging means for converging light emitted from the lamp unit;  
image forming means for forming an image using the light converged
- 15    by the converging means; and  
projecting means for projecting the image formed by the image  
forming means on a projection member.